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ABSTRACT

A one year descriptive study investigated the strategies used by a group of competent beginning readers who were learning to read in a program in which text reading was the main instructional task. Subjects included 52 six-year-old children attending 20 randomly selected schools in Auckland, New Zealand. Strategy usage in oral reading was related to three factors: learning opportunities over time, reading proficiency, and text difficulty. The data, comprised of errors and self-corrections, were analyzed at three linguistic levels--graphemic, syntactic, and semantic--to infer strategies. The progress the children made on code-emphasis texts indicated their improvement in decoding skills. Analysis of the errors showed that the children made wide use of syntactic and semantic cues to help them learn an efficient system of responses to graphemic cues. Evidence of self-correction strategies was also found. The results of the study highlight the complex nature of learning to read and suggest that while some teaching programs that emphasize a particular learning strategy may be successful, they may not take full advantage of other equally valid strategies that children can develop. (HOD)

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TITLE OF PAPER

THE STRATEGIES CHILDREN USE IN LEARNING TO READ

NAME OF AUTHOR

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SESSION

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The Strategies Children Use In Learning to Read^{*}

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Introduction

Smith (1978) in his analysis of the process of reading says, "So many instructional methods have been tried, and so many succeed (in some instances at least), that further permutations in the game of instructional roulette are unlikely to produce any great gain, either by chance or design" (p.iii). Because research has not yet uncovered one superior method of teaching reading, it is felt that more can be gained by focussing this study on the learning efforts of the child. All too often, researchers and educators have made pronouncements on beginning reading without looking closely at the child, and objectives and activities in a reading lesson have often been sequenced by the logical structure of an adult mind. While these lessons may succeed in teaching particular skills, they may not take full advantage of other equally valid strategies which a child can develop.

This paper is about successful children who developed efficient strategies to help them through the complex task of learning to read. Admittedly this is only a part of the story, and I am looking only at the learning efforts of the child; not at the instruction provided by the

* This paper presents part of the findings of a doctoral research programme supervised by Professor Marie M. Clay, and is partially supported by a research grant from the University of Auckland Research Fund (Grant No. 141 ED 20). The author wishes to thank Marie M. Clay and John Guthrie for reading this paper in draft form and offering helpful suggestions.

teaching. However, teaching and learning are complementary processes and the ignoring of either provides only a partial picture of the educational process.

The Background.

The children in this one year analytic study came from Auckland, the largest city in New Zealand. Auckland has, besides a majority white population, a cosmopolitan mixture of Pacific Islanders, comprising the Maoris, original Polynesian settlers of New Zealand, and other more recent immigrants from Western Samoa, the Cook Islands, Nuie, Tonga, Fiji, and the Tokelaus. Each of these Island groups has its own distinct culture and value system and way of child-rearing. New Zealand schools generally have minority groups of Maori and Pacific Island children and a majority group of white children.

In New Zealand, the child enrolls at a school on any school day he turns five. Teaching methods which emphasize the learning of letter-sound correspondences ("phonics") or the learning of a limited number of sight words ("look and say") have not been in use in New Zealand for a long time, 30 years for the "phonics" method, and 17 years for the "look and say" method. The Auckland children I studied were in a programme which used text reading as the main task, a programme that encouraged instruction in response to errors during the course of reading, while de-emphasizing the prior teaching of sounds or of words singly or in lists (Clay, 1979a). The classroom texts were written by authors who tried to use the spoken

language of New Zealand children and sentences were not reduced to "noun-verb or verb-noun dyads" (Clay, 1979a). This method which focusses on the messages of continuous texts is supported by encouraging children to write their own stories and messages. Such an instructional programme, where the learning sequence is not tightly controlled, provided the setting in which the study was conducted.

The main questions of the study relate to whether children in such a programme can read novel and difficult texts, and the kinds of strategies they use in learning to read. In a longitudinal study, Clay (1966) has documented significant changes in the reading behaviour of the Auckland child in his first year at school. From an analysis of errors in oral reading, evidence was found to support the view that the child used a strategy that relied mainly on syntax to aid him in reading. A cross-sectional study found that although the 7-year-olds depended heavily on syntax and meaning, there was an increased use of graphemic cues (Williams, 1968). The present study aimed to obtain information about efficient reading strategies developed by the competent Auckland child in his second year in school.

The children

From a list of the 203 State primary schools in the Auckland Metropolitan District, excluding special schools for handicapped children, 20 schools were randomly selected such that any of these schools had an equal chance of being selected. There were 242 6-year-old children attending these 20 schools. Because the major questions were about efficient reading strategies, only competent readers were selected, (on the basis of scores obtained in a reading test administered at the beginning of the study), from the top 50% of the 242 children. The 121 competent

readers were then allotted to 4 progress groups and 13 children were randomly selected from each of these 4 progress groups (called Average, High Average, Good and Excellent), to obtain a total number of 52 competent readers for the study (26 boys and 26 girls). The division of the children into progress groups was made to allow a comparison between the achievements of children having different levels of reading competence.

The group of 52 competent readers could be compared with the top half of children in reading achievement in a class.

The children were tested at ages six (6:0), six and a half (6:6) and seven years (7:0).

The Texts

The core series which provided the basis of classroom instruction and which were used to obtain the records of reading progress were the *Ready to Read* books (Department of Education, 1963) supported by other supplementary texts. The different classroom texts each child read to the observer were labelled;

- (1) Easy, if read with above 95% accuracy, and
- (2) Difficult, if read with 80% to 89% accuracy.

The children also read two passages from an older series written for a "phonics" programme. This series, *The Royal Road Readers* (Daniels & Diack, 1954 - 1958) was written under the strict control of a scheme intended to gradually introduce words of increasing phonic difficulty. *SAM* the shorter passage, was from the first book and *JACK* from the eighth book, of the nine books in the series. The authors claimed that by Book 8, almost all the phonic complexities have been introduced. *JACK* was chosen because it also had difficult sentence structures and contained words likely to

be unfamiliar to New Zealand children (e.g. clambered, ramble). As an illustration of the contrast between this series and the New Zealand one, compare these two introductions from the two series.

Jack Easy, out for a ramble one morning, saw on the far side of the hedge an apple tree loaded with tempting, red apples. He clambered over the hedge and up the tree. He picked three or four of the ripest apples and began to eat one.

(Daniels and Diack, 1958, Bk. 8)

The Wilson children, Brian, Kerry and Joe lived at Green Bay. Green Bay was a good place for children to live. All the year round they could go fishing. They could climb over the rocks, and explore the rock pools and caves. They could race one another along the beach. And in summer they could go swimming every day.

(Department of Education, Bk. 6)

The 'phonics' texts do not provide the language support given by the New Zealand classroom texts, and the child may be forced to rely mainly on his grasp of a system of responses to graphemic cues. The assumption is that the ability to read this passage is an indication of the child's improved grasp of the rules governing the patterning of English orthography.

The Data

The data comprising errors and self corrections were collected from the transcripts of the 52 children reading continuous texts. An error was defined as any observed response that was deviant from the printed text. A self corrected error was not included when totalling uncorrected errors but was subjected to analysis in the same way as the error which remained uncorrected. Incorrect articulation (e.g. /dei/ for /dei/) was not recorded as an error. Dialect errors (which were few in number) like

gimme for *give me* were also excluded (Clay, 1971).

The indications of children's learning of strategies in reading were inferred from the errors they make in oral reading. If reading corresponds perfectly in every detail to the text, there is little one can say about the strategies involved in that accurate rendering. In the past, reading teachers placed high priority on accuracy and errors were discussed simply as behaviour to be avoided (Goodman & Burke, 1973). However it has been pointed out in a number of studies (Clay, 1966; Williams, 1968; Goodman, 1969; Biemiller, 1970; Kolers, 1970; Weber, 1970; Goodman & Burke, 1973; Cohen, 1975; De Lawter, 1975) that most errors are usually acceptable in more than one way.

Test: This is a house.

Child: This is a horse.

This error not only has some graphemic similarity with the text word, but it also fits in with the syntax and meaning of the sentence. These acceptable features are significant if one assumes that they reveal what the reader chooses as the basis for a response in a particular instance. These correct features can be seen to indicate the kinds of information that the reader utilises to identify the words. The underlying assumption of these studies is that the reader uses the same source of information, whether or not the response is fully acceptable (Weber, 1968).

In this study, an error was examined firstly for any graphemic similarity with the text words, and then for any syntactic acceptability and finally for semantic acceptability (Goodman & Burke, 1973; Ng, 1979). The categories graphemic, syntactic and semantic are not mutually exclusive. An error can fall into any 1, or 2, or even all 3 of these categories.

(a) Graphemic similarity

No Graphemic - There were no letters in common between the text word and the error

Text: there	Text: over
Child: build	Child: that

Graphemic - The text word and the error had one or more letters in common. The order of the letters in the error need not correspond to the order of the letters in the text word.

Text: sound	Text: covers	Text: clambered	Text: on
Child: nose	Child: cats	Child: climbed	Child: no

(b) Syntactic acceptability

The grammaticality of a sentence was viewed apart from its semantic meaning. Sentences were classified syntactically unacceptable when they violated some syntactic rule. Sentences like "I heard a purple symphony" are more naturally said to be semantically deviant or to violate psychological constraints (Langacker, 1973). The same could be said of some nonsense nursery rhymes. The test then for the grammaticality of an error is whether the sentence containing the error has an acceptable grammatical structure. Examples of differing degrees of acceptability are given below. The extracts are taken from the texts children read in this study. A tick (✓) represents one correct response to the word in the text.

An error can be placed in either the Syntactic or the No Syntactic category.

No Syntactic - The error was totally unacceptable.

Text: That was why he would take only the branches ...
Child: At ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

Syntactic - Included in this category were errors that had varying degrees of acceptability.

- (a) The error was acceptable only with the prior portion of the sentence.

Text: One day when he was walking...

Child: ✓ of ✓ ✓ ✓ ✓

Here "of" can syntactically occur after "one", but is not acceptable within the whole sentence.

- (b) The error was acceptable only with the following portion of the sentence, but not with the prior portion.

Text: and we'll rub those stripes off ...

Child: ✓ ✓ rubbed ✓ ✓ ✓

- (c) The error was syntactically acceptable within the whole sentence and/or the total passage.

Text: Then he went away to his caravan to eat his lunch...

Child: ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ speak ✓ ✓

Semantic acceptability

Goodman and Burke (1973) specified that the judgement for semantic appropriateness was to be made only on errors that resulted in syntactically acceptable sentences because the structural organization of a sentence forms the basis for semantic relationships. There is some dispute among linguists whether the semantic component should be defined as a function of the syntactic component (See Mosenenthal, 1977). However, this rule was used in the present analysis because it allows the measurement to reach acceptable levels of inter-rater agreement.

One exception was made to the rule. Consider this example.

Text: the boy peeping from under the table could see ...
 Child: ✓ ✓ peeped ✓ ✓ ✓ ✓ ✓ ✓

Here the base of the word (Quirk & Greenbaum, 1973) was kept, and though the error was not syntactically acceptable, one cannot ignore the close semantic relationship between the stimulus word and the response. Errors of this nature were also categorized as having semantic acceptability.

On the basis of this comparison, each error was placed in either the Semantic or the No Semantic category.

No Semantic - The error was totally unacceptable

Text: and I will give you what you deserve
 Child: ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ day

Semantic - Included in this category were errors that had varying degrees of acceptability.

(a) The error retained the base of the word,

Text: You seem to think you own these apples.
 Child: ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ apple.

(b) The error was acceptable with the prior but not with the following portions of the sentence.

Text: They had bought the very best flowers they...
 Child: ✓ ✓ both ✓ ✓ ✓ ✓ ✓

(c) The error was acceptable with the latter but not with the prior portion of the sentence.

Text: Tootle was a black and white kitten who belonged to Judy.
 Child: ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ belong ✓ ✓

(d) The error was acceptable within the sentence and/or the total passage.

Text: He clambered over the hedge and up the tree.

Child: ✓ climbed ✓ ✓ ✓ ✓ ✓ ✓

It can be seen that a more elegant classification system can be adopted, using the varying degrees of acceptability in each of the Graphemic, Syntactic and Semantic categories. However, it has been found that inter-rater agreement is low if the categories of the various levels of acceptability are used (Hood, 1976; Pine, 1977). This simple system was chosen mainly because it produced higher inter-rater agreement values, an important consideration to a researcher wishing to make inferences from the scores that were derived.

Scores derived from analysis of the acceptable features of errors have been used to infer the children's use of the various cues in reading. In New Zealand, the reading errors of children in their first year of school were found to have higher percentages of syntactic acceptability (72%) than graphemic similarity (41%) (Clay, 1966). However 87% of the errors of 7-year-olds were graphemically similar with 72% syntactically acceptable and 65% semantically acceptable (Williams, 1968). The interpretation of these findings was that the first year children used contextual cues to help them obtain information from print (Clay, 1979a). The 7-year-olds however had acquired greater proficiency in making use of graphemic cues.

Gibson and Levin (1975) in a review of error analysis studies in the United States claimed that a child may place less importance on contextual cues while he is learning to use graphemic cues. The questions asked of the present study which was conducted on children under a different instructional method in New Zealand were;

- (i) Would these children improve in their decoding skills in their second year of school?
- (ii) Would their errors show an increased use of graphemic cues accompanied by a decreased use of syntactic and/or semantic cues during this period?

Improved accuracy rates on the "phonics" texts were used to indicate progress in decoding skills. To answer the second question, percentages of errors that were graphemically similar, syntactically acceptable or semantically acceptable in the 3 sessions were compared.

The various scores obtained for each child at the 3 testing sessions were subjected to statistical analysis. The Friedman two-way analysis of variance test for related samples was used for the total group and for each of the 4 progress groups (Average, High Average, Good and Excellent) to examine differences in the percentages of a particular error type (Graphemic, Syntactic or Semantic) at the different sessions (ages 6:0, 6:6 and 7:0). The Kruskal-Wallis one way analysis of variance for independent samples was used to test for differences among the 4 progress groups while controlling the variables of time and text difficulty.

The level of significance was set at $p < 0.05$.

Results

From the oral reading of the children observed at 6:0, 6:6 and 7:0, a total of 14,475 errors were recorded. At each of the testing sessions the children read about 200 running words at the Easy and Difficult levels, passages taken from the classroom series. *JACK* has 189 words and *SAM* has 104 words.

The "phonics" texts

The progress of these competent children on the "phonics" texts is shown in Table 1. It can be seen that although *SAM* was from Book 1 of

Table 1 about here

the *Royal Road Readers*, and *JACK* was from Book 8, there was not much difference in the accuracy levels obtained on the two texts. For these children, the average accuracy levels at 6:0, 6:6 and 7:0 for *SAM* were 77%, 88% and 92% while for *JACK* they were 72%, 85% and 91%. At 6:0, these texts were read slowly and with great difficulty but progress was evident at 6:6. By 7:0, three quarters of the 52 children read the harder passage *JACK* with above 90% accuracy. The Average group found *JACK* to be no more difficult than the last two books of their classroom series. At all the 3 test sessions, the performance of the children reading these passages was closely related to their position in the progress groups, with those in the Excellent group finding the least difficulty and those in the Average group the most.

The classroom texts

The total group

At the Easy level the Friedman test found no significant differences between the data from the 3 sessions for the 3 error types (i.e. between percentages of errors that were graphemically similar or syntactically acceptable or semantically acceptable) (See Table 2). However at the

Table 2 about here

Difficult level, significant differences were found for the errors in the Syntactic and Semantic categories (See Table 3). Examination of Table 3 also shows that the percentages at 6:0 and 6:6 were similar, but the

Table 3 about here

differences were large between ages 6:6 and 7:0.

Group differences

When the Friedman test was applied separately to each of the 4 progress groups, no significant differences were found between the data from the 3

sessions for the 3 error types on Easy texts (See Table 2). On the Difficult texts, significant differences were found for only the 2 higher groups (Good and Excellent) for the errors in the Syntactic and Semantic categories. Like the general group trend, Table 3 shows that the greater difference between the values from the 3 sessions occurred between ages 6:6 and 7:0 for the Good and Excellent groups.

The Kruskal Wallis test found a significant difference between the 4 progress groups on the percentages of errors that were syntactically and semantically acceptable (See Table 3). In these 2 categories at all 3 test sessions, the Excellent group had the highest percentages followed by the Good, High Average and then the Average groups.

Discussion

Improvement in decoding skills

The results obtained on the "phonics" texts indicated that these children had improved in their decoding skills, without which they would not have been able to read texts not written to support their own oral language usage. This finding may surprise some overseas educators, for these Auckland children were not participating in a tightly sequenced programme for the instruction of letter-sound correspondences. In many classrooms for these children such learning would receive some attention but decoding skills would not be focal in instruction. The children did find the language in these passages strange. Comments like "This doesn't make sense," and "What does it mean?" were frequent even at 7:0, from children in all 4 progress groups.

Another indication of progress in reading was the fact that the children were able to read progressively books higher in their classroom series. By the end of the study, half of them were able to read all the

books in the classroom series with above 90% accuracy and other more difficult material had to be presented to them to obtain ceiling levels of performance (i.e. at the 80% - 89% accuracy level).

The use of the three cues

General group trends

The analysis of errors showed that the child did not drop the use of syntactic and semantic cues while he was gaining an efficient system of responses to graphemic cues. From Tables 2 and 3 it may be inferred that the child used more graphemic cues while reading Difficult passages than when reading the Easy passages. With the variable of text difficulty controlled, there was no difference between the percentages of errors that were graphemically similar at the 3 test sessions. This is an indication that the child did not at any of the 3 test sessions place greater importance on graphemic cues while decreasing his reliance on syntactic and semantic cues. In fact the data shows that the children were using more syntactic and semantic cues at 7:0 than at 6:0 on the Easy texts (See Table 3).

Gibson and Levin (1975) have suggested that for children in the United States, the acquisition sequence may be divided into three steps;

- Step 1 - reliance mainly on contextual cues
- Step 2 - reliance mainly on graphemic cues
- Step 3 - combined use of graphemic and contextual cues.

The results from the present study show that this stage - like acquisition sequence may not hold for the New Zealand child. This indication was obtained from the behaviour of the children reading not only passages familiar to them, but also passages that were difficult and previously unseen.

Clay (1979a) sees the oral language of the linguistically average child providing a source of responses which can be successfully used to anticipate the textual stimuli. Children do "read" at this early age by using very few of the graphemic cues. Children in their first year of reading, for example, invent whole strings for words from their texts, while appearing to pay scant attention to the graphemic display (Clay, 1966; Weber, 1970; Cohen, 1975). However reasonable a strategy this may be, the novice reader must soon have to pay substantial attention to graphemic cues. The children in this study appeared to be using their grasp of the oral language to help them learn increasingly more about the graphemic cues which are important to attaining proficiency in reading. The errors these children made while reading are viewed as indications of the strategies they used to keep the general activity of reading going while more was learnt about the new task of coping with print.

Group differences

The data from the progress sub-groups of the present study showed that the children of all 4 groups did use syntactic and semantic cues to help them learn to read. The more competent novice readers however, showed a greater tendency to use these contextual cues. Success in learning to read is therefore inferred to be related to the ability to bring syntactic and semantic cues to the reading task.

Self correction strategies

While errors can be used to indicate the strategies a child uses in learning to read, they can also reflect limitations in his reading ability which result largely from his not yet having had the opportunity to learn all the skills required of the mature proficient reader. Compared to an adult, the child has limited vocabulary (Hunt, 1970), limited control over

syntax (Chomsky, 1969; Menyuk, 1969; Hunt, 1970; Clay, 1971) and limited perceptual learning (Gibson, 1971; Vernon, 1971). These limitations do not allow him to make full use of the full range of cues that are available in printed words.

In this study however, the children not only made errors but also showed ability to correct their errors. Kanfer (1970) notes that self-regulatory processes begin when deviations from a standard of acceptable behaviour are monitored. In relation to reading, it can be said that the child's ability to detect an error is firstly dependent on his perception of a departure from a range of standards in reading. The appearance of self correction is an indication that the child has learnt something about the range of behaviours acceptable in reading. This monitoring function appears to be important when the subject has "low skills or inadequate criteria for judging his own performance" (Kanfer, 1970). A person well-practised in a task would only on a few occasions stop to evaluate his performance. As a child corrects an error, he may improve his understanding of the cue systems available to him and the interrelationships between these systems in reading processes. Self correction is seen as a positive strategy because of its potential for self teaching.

Below is an illustration of how self correction operates. Here is a child (aged 6:3) reading part of a text (errors are underlined). The word *circus* was substituted by *Christmas* at the first encounter, *Christmas play* at the second, and was self corrected on the third.

Child: Let us make up a Christmas play, said David. Have you been to a (Child looks at "circus") Christmas play? (Child looks at observer) said Miss Pennyfeather. Yes, said David. When the Christmas (Quick glances at the sentence, the picture accompanying the page and then the word "circus") *circus* (child looks triumphant) *came, we all went.*

Here the child appeared to be actively using all the cues she could find, and attempting to elicit cues from the observer! The first error fitted the syntax and meaning of the sentence. However the second error brought a sense of dissonance, and an attempt was made to smooth out the incongruity by adding the word *play*. This solution apparently did not work for the third error and further cue searching resulted in a correct response.

What is of significance here is not only that the child had produced a correct response for a word that she had previously made two mistakes on. The child may also have been learning new features of the graphemic stimulus, and possibly the interrelationships of the cue systems necessary to reading progress. The ability to detect errors and learn from self correction could be a valuable asset for children in learning to read. Children have different areas of strengths and weaknesses due to different experience with language and print. If the child possesses a mechanism for self correction, then he is best able to judge when and how to improve his skills in reading.

Self correction was noticed by Clay (1966) who observed a form of the behaviour appearing spontaneously in the records of 90% of her research group, 5 weeks before their promotion to book reading. In Clay's study, children in their first year of school were found to correct about 26% of the errors they make (2,736 out of 10,525 errors). The top 50% of the children correct ~~4~~1 in every 3 or 4 errors, the lower 50% corrected on average about 1 in every 14 errors. The better readers seemed better able to correct their errors. Other studies have found self correction rates to be useful indicators of reading progress (Williams, 1968; Watson, 1973; Cohen, 1975; Recht, 1976). Clay also observed that overt self correction apparently "goes underground" as the child reaches a certain stage of proficiency (Clay, 1979a).

In the present study, the children corrected about 23% of the errors they made while reading the classroom texts. They self corrected more while reading the Easy texts than the Difficult texts (See Table 4). The

Table 4 about here

implication from this is that if one wants to encourage self correction, it is best done on texts that a child can read with above 95% accuracy. If a child continually reads passages that are full of errors, he will not have the support of contextual cues while he is learning the less familiar aspects of reading. Teachers are also aware of the damaging effects of continued failure in learning. Another study has also demonstrated that even the better readers show low self correction rates on tasks that are too difficult for them (Goodman & Burke, 1973).

In the present study, the children were trying very hard to self correct, even on the difficult texts. On the texts that were previously unseen, the children were meeting more unfamiliar words and thus a lot more word solving was probably taking place.

On the difficult texts, the children were correcting contextually appropriate errors, errors that were likely to be ignored on easy texts.

Text: before Mother was awake

Child: ✓ ✓ ✓ up...awake

The strategy appears to be one of making a real word "guess", before careful examination to attempt to correct it. It is a strategy that is similar to the one described by Smith (1978), hypothesized to be used by an adult reader when he cannot identify a word on sight. Smith maintains that context clues and cues based on morphological and syntactic relationships are used rather than letter-sound correspondence rules. Smith argues that when we meet an unfamiliar word, it is unlikely that we construct the sound in order to get the meaning. Rather we work out the meaning 'nonalphabetically' and then proceed on to sound.

The other strategy used in self correction employs the rules that the child has learnt about decoding, a "sounding out of the word", followed by recognition and correction.

Text: fascinate ...

Child: /fæ skineit/ ... fascinate

An examination of this example reveals that it is unlikely that pure decoding is sufficient and that those decoding rules are "heuristics" (Gough, 1972) for locating words known to the ear.

Some children were also correcting words that were very close to the graphemic stimulus, words that also had syntactic and semantic acceptability.

Text: Then her squealing became a high screech ...

Child: ✓ ✓ ✓ ✓ ✓ ✓ scream ...

The error was self corrected after a long pause.

From these examples it can be seen that these word solving strategies depend not only on an ability to relate sounds to the graphemic cues but also an ability to bring some meaning to the words before they can be independently read. It is likely that both these strategies were used by the children in an integrated manner. This complex picture is made even more complicated if one recalls that overt self-correction decreased as the child gained proficiency in reading. There may be other "tricks" used by the competent reader which are not subject to scrutiny.

The findings of the present study which were based on the observation of error and self correction behaviour may not find agreement with some educators. The reason for this resistance may be that the achievement testing movement has tended to divert a teacher's attention from the pupil's behaviour by emphasising the overall scores obtained in standardized reading

tests (Page, 1975). There are views that count all regressions as merely errors and the resulting numerical total is treated as an indicator of the difficulty the child is having with his reading (Ekwall, 1974).

It is not denied that reading errors may reflect limitations in a child's abilities. In any new skill, the novice will make errors, whether it be reading or football. If there is evidence that a child is monitoring his errors, then there are grounds to argue that these errors provide opportunities for learning. The plea here is not to ignore reading errors but to examine the quality of the errors for indications of the strategies which children develop to help them to read. The above assumption is supported by the finding that reading errors reveal systematic patterns which can be explained by strong theoretical arguments (See Clay, 1979a; Ng, 1979). Besides, this assumption forms the basis of a successful reading recovery programme in New Zealand schools which is helping 6 to 8-year old children untangle some of the difficulties they have while learning to read (Clay, 1979b). This weakens the opposing position that holds errors to be accidental or coincidental occurrences, and strengthens the argument for sensitive observation of error and self correction behaviour in the novice reader.

Conclusion

The theme of this conference is related to problems and promises in the 1980's. One of the greatest problems lies in the refusal of some to look closely at the child they are teaching. In doing this, they are ignoring the factor that holds a great promise for success in learning to read, the strategies brought by the child to the learning task. There is a common adage in education, that the teacher must "go down to the child's level". This is often interpreted as the lowest level in the logical steps

conceptualised by an adult. For example, one may think that a child can *only* learn to read by first recognising each letter and knowing its name and sound before stringing them together to produce sounds, words and sentences. This study I have described shows that this does not appear to be the case for the New Zealand child. No claim is made for the superiority of the instructional method, merely that the evidence shows the average and good novice readers in Auckland to develop a range of strategies that are successful in helping them learn to read. Casual observation also suggests that they enjoy the learning activities provided in a programme that is not tightly sequenced.

I have not been able to locate error analysis studies conducted of children in South East Asian schools. However I have been able to record the reading behaviour of some Singapore children aged 6 and 7 years. These recordings show similar error patterns and self correction behaviour. there is then some indication, however slight, to suggest that the successful strategies for learning to read described above may not be exclusive to New Zealand children.

The results presented in this paper highlight the complex nature of the learning to read process and suggest that while some teaching programmes which emphasize a particular learning strategy may be successful, they may not take full advantage of other equally valid strategies which children can develop. It becomes apparent that sensitive observation of the child's reading behaviour, especially error and self correction behaviour, can provide invaluable insight for a reading teacher.

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Table 1.

Progress of Children on *SAM* and *JACK* from 6:0 to 7:0.*SAM*

Percentage of words read accurately			
Age Group	6:0	6:6	7:0
Average	61	79	87
High Average	72	86	92
Good	82	90	94
Excellent	92	95	95
Total	77	98	92

JACK

Percentage of words read accurately			
Age Group	6:0	6:6	7:0
Average	56	74	83
High Average	68	84	90
Good	76	88	94
Excellent	88	93	96
Total	72	85	91

Table 2.

Percentages of errors that were graphemically similar, syntactically or semantically acceptable made when reading Easy texts at ages 6:0, 6:6 and 7:0.

Ages Group	Graphemic				Syntactic				Semantic			
	6:0	6:6	7:0		6:0	6:6	7:0		6:0	6:6	7:0	
Average	66	64	70	ns	74	83	81	ns	72	82	80	ns
High Average	71	59	65	ns	79	90	74	ns	83	89	75	ns
Good	72	71	67	ns	91	91	92	ns	95	88	92	ns
Excellent	57	59	52	ns	85	96	97	ns	88	95	97	ns
	ns	ns	ns		*	*	*		*	*	*	
Total	67	64	63	ns	82	90	86	ns	85	89	86	ns

* $p < 0.05$

Table 3.

Percentages of errors that were graphemically similar, syntactically or semantically acceptable made when reading Difficult texts at ages 6:0, 6:6 and 7:0.

Ages Group	Graphemic				Syntactic				Semantic			
	6:0	6:6	7:0		6:0	6:6	7:0		6:0	6:6	7:0	
Average	78	70	73	ns	50	47	67	ns	47	44	59	ns
High Average	80	80	85	ns	51	52	64	ns	50	45	59	ns
Good	79	80	70	ns	57	62	81	*	57	57	75	*
Excellent	75	89	63	ns	76	68	86	*	77	64	85	*
	ns	ns	ns		**	**	***		***	**	***	
Total	78	80	73	ns	58	57	74	***	58	53	70	***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table 4.

The influence of text difficulty on the proportion of self correction (self correction as a percentage of potential error) when reading Easy and Moderately Difficult texts at ages 6:0, 6:6 and 7:0.

Text Group	6:0		6:6		7:0	
	Easy	Difficult	Easy	Difficult	Easy	Difficult
Average	59	20	47	17	48	15
High Average	56	14	55	15	46	13
Good	59	16	49	18	38	11
Excellent	60	13	41	12	31	11
Total	59	16	48	12	41	13